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CLAIMS

1. A download system comprising a server to manage data, and a communication terminal to download the data from the server,

wherein the communication terminal comprises:

5 reservation candidate acquiring means for transmitting to the server a transmission request for transmission of reservation candidate information containing time information indicating at least a start time concerning each candidate time zone to which a reservation for download of the data can be allocated, and for acquiring the reservation candidate information transmitted
10 in response to the request by the server;

reservation selecting means for transmitting to the server reservation choice information containing as reservation time information the time information selected based on the reservation candidate information acquired by the reservation candidate acquiring means, and for storing the start time
15 indicated by the reservation time information, as an initiation time of the download;

data request transmitting means for transmitting a transmission request for transmission of the data to the server, at the initiation time stored by the reservation selecting means; and

20 data receiving means for receiving the data transmitted by the server in accordance with the transmission request for transmission of the data transmitted by the data request transmitting means;

wherein the server comprises:

data storing means for storing the data;

25 reservation information storing means for storing a reservation table in which the reservation for the download is to be allocated to reservation frames

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within a maximum number at each time to permit simultaneous execution of the download, set based on a load state at each time preliminarily measured;

5 reservation candidate generating means for, in response to the transmission request for the transmission of the reservation candidate information transmitted by the communication terminal, determining time zones as candidates available for the download of the data, based on the reservation table stored in the reservation information storing means, for generating the reservation candidate information containing the time information about the time zones, and for transmitting the reservation candidate information to the communication terminal;

10 reservation registering means for receiving the reservation choice information transmitted by the communication terminal, and for registering in the reservation table the reservation for the download in the time zone corresponding to the reservation time information included in the reservation choice information; and

15 data transmitting means for transmitting to the communication terminal the data stored in the data storing means, in response to the transmission request for transmission of the data transmitted by the communication terminal.

20 2. The download system according to Claim 1, wherein, in generating the reservation candidate information, the reservation candidate selecting means of the server temporarily allocates in the reservation table, reservations for the download corresponding to the time information included in the reservation candidate information, together with information to identify

25 the communication terminal having transmitted the transmission request for transmission of the reservation candidate information, and

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5 wherein the reservation registering means adopts the reservation in the time zone corresponding to the reservation time information included in the reservation choice information transmitted by the communication terminal, among the reservations temporarily allocated together with the information to identify the communication terminal, in the reservation table, and cancels the other reservations temporarily allocated together with the information to identify the communication terminal, in the reservation table.

10 3. The download system according to Claim 1 or 2, wherein, in generating the reservation candidate information, the reservation candidate generating means of the server generates the reservation candidate information preferentially contain the time information about time zones with a large number of said reservation frames to which the reservation for the download is not allocated, based on the reservation table.

15 4. The download system according to any one of Claims 1 to 3, wherein the communication terminal further comprises available range acquiring means for transmitting to the server a transmission request for transmission of available range information containing information about presence/absence of a time zone available for the reservation for the download in each of second predetermined periods obtained by subdividing a first
20 predetermined period, and for receiving the available range information transmitted from the server,

25 wherein the server further comprises available range generating means for generating the available range information in accordance with the transmission request for transmission of the available range information transmitted by the communication terminal, and for transmitting the available range information to the communication terminal,

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wherein the reservation candidate acquiring means transmits to the server the transmission request for transmission of the reservation candidate information containing the information about the second predetermined period selected based on the available range information received by the available range acquiring means, and

wherein the reservation candidate generating means generates the reservation candidate information containing the time information about time zones available for the reservation for the download in the second predetermined period, based on the information about the second predetermined period included in the transmission request for transmission of the reservation candidate information transmitted by the communication terminal, and transmits the reservation candidate information to the communication terminal.

5. The download system according to Claim 4, wherein the available range information generated by the available range generating means contains level information indicating a number of said reservation frames to which the reservation for the download is not allocated, in each of the second predetermined periods.

6. The download system according to Claim 4 or 5, wherein the available range information generated by the available range generating means is comprised of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

7. The download system according to any one of Claims 4 to 6, wherein the available range information generated by the available range generating means is comprised of a list resulting from further text conversion

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of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

5 8. A communication terminal adapted for downloading data from a server to manage the data, comprising:

reservation candidate acquiring means for transmitting to the server a transmission request for transmission of reservation candidate information containing time information indicating at least a start time concerning each candidate time zone to which a reservation for download of the data can be
10 allocated, and for acquiring the reservation candidate information transmitted in response to the request by the server;

reservation selecting means for transmitting to the server reservation choice information containing as reservation time information the time information selected based on the reservation candidate information acquired
15 by the reservation candidate acquiring means, and for storing the start time indicated by the reservation time information, as an initiation time of the download;

data request transmitting means for transmitting a transmission request for transmission of the data to the server, at the initiation time stored by
20 the reservation selecting means; and

data receiving means for receiving the data transmitted by the server in accordance with the transmission request for transmission of the data transmitted by the data request transmitting means.

25 9. The communication terminal according to Claim 8, further comprising available range acquiring means for transmitting to the server a transmission request for transmission of available range information

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containing information about presence/absence of a time zone available for the reservation for the download in each of second predetermined periods obtained by subdividing a first predetermined period, and for receiving the available range information transmitted from the server,

5 wherein the reservation candidate acquiring means transmits to the server the transmission request for transmission of the reservation candidate information containing the information about the second predetermined period selected based on the available range information received by the available range acquiring means.

10 10. A server adapted for managing data to be downloaded by a communication terminal, comprising:

 data storing means for storing the data;

 reservation information storing means for storing a reservation table in which the reservation for the download is to be allocated to reservation frames within a maximum number at each time to permit simultaneous execution of
15 the download, set based on a load state at each time preliminarily measured;

 reservation candidate generating means for, in response to the transmission request for the transmission of the reservation candidate information transmitted by the communication terminal, determining time
20 zones as candidates available for the download of the data, based on the reservation table stored in the reservation information storing means, for generating the reservation candidate information containing time information about the time zone indicating at least a start time thereof, and for transmitting the reservation candidate information to the communication terminal;

25 reservation registering means for receiving the reservation choice information containing as reservation time information the time information

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selected based on the reservation candidate information, transmitted by the communication terminal, and for registering in the reservation table the reservation for the download in the time zone indicated by the reservation time information included in the reservation choice information; and

5 data transmitting means for transmitting to the communication terminal the data stored in the data storing means, in response to the transmission request for transmission of the data transmitted at the start time of the reservation time information by the communication terminal.

10 11. The server according to Claim 10, wherein, in generating the reservation candidate information, the reservation candidate selecting means temporarily allocates in the reservation table, reservations for the download corresponding to the time information included in the reservation candidate information, together with information to identify the communication terminal having transmitted the transmission request for transmission of the reservation
15 candidate information, and

 wherein the reservation registering means adopts the reservation in the time zone corresponding to the reservation time information included in the reservation choice information transmitted by the communication terminal, among the reservations temporarily allocated together with the information to
20 identify the communication terminal, in the reservation table, and cancels the other reservations temporarily allocated together with the information to identify the communication terminal, in the reservation table.

 12. The server according to Claim 10 or 11, wherein, in generating the reservation candidate information, the reservation candidate generating
25 means generates the reservation candidate information preferentially contain the time information about time zones with a large number of said reservation

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frames to which the reservation for the download is not allocated, based on the reservation table.

13. The server according to any one of Claims 10 to 12, further comprising available range generating means for receiving a transmission request for transmission of available range information transmitted by the communication terminal, for, in response to the transmission request for transmission of the available range information, generating the available range information containing information about presence/absence of a time zone available for the reservation for the download in each of second predetermined periods obtained by subdividing a first predetermined period, and for transmitting the available range information to the communication terminal,

wherein the reservation candidate generating means receives the reservation candidate information containing information about the second predetermined period selected based on the available range information, transmitted by the communication terminal, generates the reservation candidate information containing the time information about time zones available for the reservation for the download in the second predetermined period, based on the information about the second predetermined period included in the transmission request for transmission of the reservation candidate information, and transmits the reservation candidate information to the communication terminal.

14. The server according to Claim 13, wherein the available range information generated by the available range generating means contains level information indicating a number of said reservation frames to which the reservation for the download is not allocated, in each of the second predetermined periods.

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15. The server according to Claim 13 or 14, wherein the available range information generated by the available range generating means is comprised of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

16. The server according to any one of Claims 13 to 15, wherein the available range information generated by the available range generating means is comprised of a list resulting from further text conversion of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

17. A download method in which a communication terminal downloads data from a server to manage the data, the download method comprising:

a reservation candidate request transmitting step wherein reservation candidate acquiring means of the communication terminal transmits to the server a transmission request for transmission of reservation candidate information containing time information indicating at least a start time concerning each candidate time zone to which a reservation for download of the data can be allocated;

a reservation candidate generating step wherein, in response to the transmission request for transmission of the reservation candidate information transmitted by the communication terminal, reservation candidate generating means of the server determines time zones as candidates available for the download of the data, based on a reservation table in which the reservation for the download is to be allocated to reservation frames within a maximum

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number at each time to permit simultaneous execution of the download, set based on a load state at each time preliminarily measured, and which is stored in reservation information storing means, generates the reservation candidate information containing the time information about the time zones, and
5 transmits the reservation candidate information to the communication terminal;

a reservation candidate acquiring step wherein the reservation candidate acquiring means of the communication terminal acquires the reservation candidate information transmitted by the server;

10 a reservation selecting step wherein reservation selecting means of the communication terminal transmits to the server reservation choice information containing as reservation time information the time information selected based on the reservation candidate information acquired by the reservation candidate acquiring means, and stores the start time indicated by the reservation time
15 information, as an initiation time of the download;

a reservation registering step wherein reservation registering means of the server receives the reservation choice information transmitted by the communication terminal, and registers in the reservation table the reservation for the download in the time zone corresponding to the reservation time
20 information included in the reservation choice information;

a data request transmitting step wherein data request transmitting means of the communication terminal transmits a transmission request for transmission of the data to the server, at the initiation time stored by the reservation selecting means;

25 a data transmitting step wherein data transmitting means of the server transmits to the communication terminal the data stored in the data storing

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means, in response to the transmission request for transmission of the data transmitted by the communication terminal; and

5 a data receiving step wherein data receiving means of the communication terminal receives the data transmitted by the server in accordance with the transmission request for transmission of the data.

10 18. The download method according to Claim 17, wherein in the reservation candidate generating step, the reservation candidate selecting means of the server, in generating the reservation candidate information, temporarily allocates in the reservation table, reservations for the download corresponding to the time information included in the reservation candidate information, together with information to identify the communication terminal having transmitted the transmission request for transmission of the reservation candidate information, and

15 wherein in the reservation registering step, the reservation registering means of the server adopts the reservation in the time zone corresponding to the reservation time information included in the reservation choice information transmitted by the communication terminal, among the reservations temporarily allocated together with the information to identify the communication terminal, in the reservation table, and cancels the other
20 reservations temporarily allocated together with the information to identify the communication terminal, in the reservation table.

25 19. The download method according to Claim 17 or 18, wherein in the reservation candidate generating step, the reservation candidate generating means of the server, in generating the reservation candidate information, generates the reservation candidate information preferentially contain the time information about time zones with a large number of said reservation frames

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to which the reservation for the download is not allocated, based on the reservation table.

20. The download method according to any one of Claims 17 to 19, further comprising:

5 an available range request transmitting step wherein available range acquiring means of the communication terminal transmits to the server a transmission request for transmission of available range information containing information about presence/absence of a time zone available for the reservation for the download in each of second predetermined periods
10 obtained by subdividing a first predetermined period;

 an available range generating step wherein available range generating means of the server generates the available range information in accordance with the transmission request for transmission of the available range information transmitted by the communication terminal, and transmits the
15 available range information to the communication terminal; and

 an available range acquiring step wherein the available range acquiring means of the communication terminal receives the available range information transmitted from the server,

 wherein in the reservation candidate request transmitting step, the
20 reservation candidate acquiring means of the communication terminal transmits to the server the transmission request for transmission of the reservation candidate information containing the information about the second predetermined period selected based on the available range information received by the available range acquiring means, and

25 wherein the reservation candidate generating means of the server generates the reservation candidate information containing the time

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information about time zones available for the reservation for the download in the second predetermined period, based on the information about the second predetermined period included in the transmission request for transmission of the reservation candidate information transmitted by the communication terminal, and transmits the reservation candidate information to the communication terminal.

21. The download method according to Claim 20, wherein in the available range generating step, the available range information generated by the available range generating means of the server contains level information indicating a number of said reservation frames to which the reservation for the download is not allocated, in each of the second predetermined periods.

22. The download method according to Claim 20 or 21, wherein in the available range generating step, the available range information generated by the available range generating means of the server is comprised of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

23. The download method according to any one of Claims 20 to 22, wherein in the available range generating step, the available range information generated by the available range generating means of the server is comprised of a list resulting from further text conversion of a list indicating binary values of the information about the presence/absence of a time zone available for the reservation for the download in each of the second predetermined periods.

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